

CLAIMS

What is claimed is:

1. A power transmission comprising:
  - a first rotating member comprising at least one first concave portion formed on an inner circumferential surface of the first rotating member;
  - a second rotating member comprising at least one second concave portion formed on an outer circumferential surface of the second rotating member;
  - a holding member positioned within the at least one second concave portion; and
  - a connecting member slidably held by the holding member, wherein when an amount of torque transmitted to the first rotating member is less than or equal to a predetermined amount of torque a particular portion of the connecting member is in contact with a wall of the at least one first concave portion to prevent a rotation of the first rotating member with respect to the second rotating member, and wherein when the amount of torque transmitted to the first rotating member is greater than the predetermined amount of torque the connecting member is positioned within the at least one second concave portion, the connecting member resiliently deforms the holding member, and the particular portion of the connecting member is disengaged from the wall of the at least one first concave member to allow the first rotation member to rotate with respect to the second rotation member.
2. The power transmission according to claim 1, wherein a radius of curvature of the particular portion of the connecting member is less than a radius of curvature of the at least one first concave portion.
3. The power transmission according to claim 1, wherein the first rotating member is substantially annular shaped, and the second rotating member is substantially disc shaped.
4. The power transmission according to claim 1, wherein the connecting member comprises a rigid member.
5. The power transmission according to claim 1, wherein the connecting member comprises a resilient member.

6. The power transmission according to claim 1, wherein the connecting member comprises means for dampening.

7. The power transmission according to claim 1, wherein the at least one first concave portion comprises three first concave portions, and the at least one second concave portion comprises three second concave portions.

8. The power transmission according to claim 1, further comprising a lubrication layer formed between the particular portion of the connecting member and the at least one first concave portion.

9. The power transmission according to claim 1, wherein the particular portion of the connecting member is self-lubricating.

10. A power transmission comprising:

a first rotating member comprising at least one first concave portion formed on an inner circumferential surface of the first rotating member;

a second rotating member comprising at least one second concave portion formed on an outer circumferential surface of the second rotating member;

a holding member positioned within the at least one first concave portion; and

a connecting member slidably held by the holding member, wherein when an amount of torque transmitted to the first rotating member is less than or equal to a predetermined amount of torque a particular portion of the connecting member is in contact with a wall of the at least one second concave portion to prevent a rotation of the first rotating member with respect to the second rotating member, and wherein when the amount of torque transmitted to the first rotating member is greater than the predetermined amount of torque the connecting member is positioned within the at least one first concave portion, the connecting member resiliently deforms the holding member, and the particular portion of the connecting member is disengaged from the wall of the at least one second concave member to allow the first rotation member to rotate with respect to the second rotation member.

11. The power transmission according to claim 10, wherein a radius of curvature of the particular portion of the connecting member is less than a radius of curvature of the at least one second concave portion.
12. The power transmission according to claim 10, wherein the first rotating member is substantially annular shaped, and the second rotating member is substantially disc shaped.
13. The power transmission according to claim 10, wherein the connecting member comprises a rigid member.
14. The power transmission according to claim 10, wherein the connecting member comprises a resilient member.
15. The power transmission according to claim 10, wherein the connecting member comprises means for dampening.
16. The power transmission according to claim 10, wherein the at least one first concave portion comprises three first concave portions, and the at least one second concave portion comprises three second concave portions.
17. The power transmission according to claim 10, further comprising a lubrication layer formed between the particular portion of the connecting member and the at least one second concave portion.
18. The power transmission according to claim 10, wherein the particular portion of the connecting member is self-lubricating.
19. A power transmission comprising:  
a first rotating member comprising at least one first concave portion formed on an inner circumferential surface of the first rotating member;

a second rotating member comprising at least one second concave portion formed on an outer circumferential surface of the second rotating member, wherein the at least one second concave portion comprises an entrance portion having a width which is less than an interior width of the at least one second concave portion; and

a resilient member slidably held by the entrance portion, wherein the resilient member comprises means for damping, wherein when an amount of torque transmitted to the first rotating member is less than or equal to a predetermined amount of torque a particular portion of the resilient member is in contact with a wall of the at least one first concave portion to prevent a rotation of the first rotating member with respect to the second rotating member, and wherein when the amount of torque transmitted to the first rotating member is greater than the predetermined amount of torque the resilient member is positioned within the at least one second concave portion, the at least one first concave portion resiliently deforms the resilient member, and the particular portion of the resilient member is disengaged from the wall of the at least one first concave member to allow the first rotation member to rotate with respect to the second rotation member.

20. The power transmission according to claim 19, wherein the resilient member comprises:  
a body portion comprising a visco-elastic material or an elastic material; and  
a clad portion comprising a visco-elastic material.
21. The power transmission according to claim 19, wherein the resilient member comprises an annular member, and the means for damping comprises a notch formed through the annular member, wherein the first rotating member is substantially annular shaped, and the second rotating member is substantially disc shaped.
22. The power transmission according to claim 19, wherein the resilient member comprises an annular member, and the means for damping comprises a notch formed through the annular member and a first portion of the resilient member having a thickness which is greater than a thickness of a second portion of the resilient member, wherein first portion of the resilient member is aligned with the notch.

23. The power transmission according to claim 19, further comprising means for preventing the resilient member from disengaging from the entrance portion.

24. The power transmission according to claim 19, further comprising a lubrication layer formed between the particular portion of the connecting member and the wall of the at least one first concave portion.

25. The power transmission according to claim 19, wherein the particular portion of the connecting member is self-lubricating.

26. A power transmission comprising:

a first rotating member comprising at least one first concave portion formed on an inner circumferential surface of the first rotating member, wherein the at least one first concave portion comprises an entrance portion having a width which is less than an interior width of the at least one first concave portion;

a second rotating member comprising at least one second concave portion formed on an outer circumferential surface of the second rotating member; and

a resilient member slidably held by the entrance portion, wherein the resilient member comprises means for damping, wherein when an amount of torque transmitted to the first rotating member is less than or equal to a predetermined amount of torque a particular portion of the resilient member is in contact with a wall of the at least one second concave portion to prevent a rotation of the first rotating member with respect to the second rotating member, and wherein when the amount of torque transmitted to the first rotating member is greater than the predetermined amount of torque the resilient member is positioned within the at least one first concave portion, the at least one second concave portion resiliently deforms the resilient member, and the particular portion of the resilient member is disengaged from the wall of the at least one second concave member to allow the first rotation member to rotate with respect to the second rotation member.

27. The power transmission according to claim 26, wherein the resilient member comprises:  
a body portion comprising a visco-elastic material or an elastic material; and

a clad portion comprising a visco-elastic material.

28. The power transmission according to claim 26, wherein the resilient member comprises an annular member, and the means for damping comprises a notch formed through the annular member, wherein the first rotating member is substantially annular shaped, and the second rotating member is substantially disc shaped.

29. The power transmission according to claim 26, wherein the resilient member comprises an annular member, and the means for damping comprises a notch formed through the annular member and a first portion of the resilient member having a thickness which is greater than a thickness of a second portion of the resilient member, wherein first portion of the resilient member is aligned with the notch.

30. The power transmission according to claim 26, further comprising means for preventing the resilient member from disengaging from the entrance portion.

31. The power transmission according to claim 26, further comprising a lubrication layer formed between the particular portion of the connecting member and the wall of the at least one second concave portion.

32. The power transmission according to claim 26, wherein the particular portion of the connecting member is self-lubricating.

33. A power transmission comprising:  
a first rotating member comprising at least one first concave portion formed on an inner circumferential surface of the first rotating member;  
a second rotating member comprising at least one second concave portion formed on an outer circumferential surface of the second rotating member, wherein the at least one second concave portion comprises an entrance portion having a width which is less than an interior width of the at least one second concave portion; and

a resilient member slidably held by the entrance portion, wherein the resilient member comprises means for preventing the resilient member from rotating, wherein when an amount of torque transmitted to the first rotating member is less than or equal to a predetermined amount of torque a particular portion of the resilient member is in contact with a wall of the at least one first concave portion to prevent a rotation of the first rotating member with respect to the second rotating member, and wherein when the amount of torque transmitted to the first rotating member is greater than the predetermined amount of torque the resilient member is positioned within the at least one second concave portion, the at least one first concave portion resiliently deforms the resilient member, and the particular portion of the resilient member is disengaged from the wall of the at least one first concave member to allow the first rotation member to rotate with respect to the second rotation member.

34. The power transmission according to claim 33, wherein the resilient member comprises:  
a body portion comprising a visco-elastic material or an elastic material; and  
a clad portion comprising a visco-elastic material.

35. The power transmission according to claim 33, wherein the resilient member comprises an annular member or an annular member having a notch formed therein, wherein the first rotating member is substantially annular shaped, and the second rotating member is substantially disc shaped.

36. The power transmission according to claim 33, wherein the resilient member comprises an annular member having a notch formed therein, wherein the thickness of a first portion of the resilient member, which is aligned with the notch, is greater than a second portion of the resilient member.

37. The power transmission according to claim 33, further comprising means for preventing the resilient member from disengaging from the entrance portion.

38. The power transmission according to claim 33, further comprising a lubrication layer formed between the particular portion of the connecting member and the wall of the at least one first concave portion.

39. The power transmission according to claim 33, wherein the particular portion of the connecting member is self-lubricating.

40. A power transmission comprising:

a first rotating member comprising at least one first concave portion formed on an inner circumferential surface of the first rotating member, wherein the at least one first concave portion comprises an entrance portion having a width which is less than an interior width of the at least one first concave portion;

a second rotating member comprising at least one second concave portion formed on an outer circumferential surface of the second rotating member; and

a resilient member slidably held by the entrance portion, wherein the resilient member comprises means for preventing the resilient member from rotating, wherein when an amount of torque transmitted to the first rotating member is less than or equal to a predetermined amount of torque a particular portion of the resilient member is in contact with a wall of the at least one second concave portion to prevent a rotation of the first rotating member with respect to the second rotating member, and wherein when the amount of torque transmitted to the first rotating member is greater than the predetermined amount of torque the resilient member is positioned within the at least one first concave portion, the at least one second concave portion resiliently deforms the resilient member, and the particular portion of the resilient member is disengaged from the wall of the at least one second concave member to allow the first rotation member to rotate with respect to the second rotation member.

41. The power transmission according to claim 40, wherein the resilient member comprises:  
a body portion comprising a visco-elastic material or an elastic material; and  
a clad portion comprising a visco-elastic material.



42. The power transmission according to claim 40, wherein the resilient member comprises an annular member or an annular member having a notch formed therein, wherein the first rotating member is substantially annular shaped, and the second rotating member is substantially disc shaped.

43. The power transmission according to claim 40, wherein the resilient member comprises an annular member having a notch formed therein, wherein the thickness of a first portion of the resilient member, which is aligned with the notch, is greater than a second portion of the resilient member.

44. The power transmission according to claim 40, further comprising means for preventing the resilient member from disengaging from the entrance portion.

45. The power transmission according to claim 40, further comprising a lubrication layer formed between the particular portion of the connecting member and the wall of the at least one second concave portion.

46. The power transmission according to claim 40, wherein the particular portion of the connecting member is self-lubricating.